

# Avangarda Tehnologiilor Smart City: Orașele Inteligente bazate pe Inovare, AI, AR&VR dezvoltate în cadrul Clusterului ClujIT

**Paulina Mitrea – Conf. Univ. Dr. UTCN**  
**Leader Brained City Group/Cluj IT**

**Doru Asauleac**  
**National Sales Manager APS / Cluj IT**

**Stelian Brad – Prof. Univ. Dr. Ing. Dr. Ec**  
**Presedinte Cluster Cluj IT**



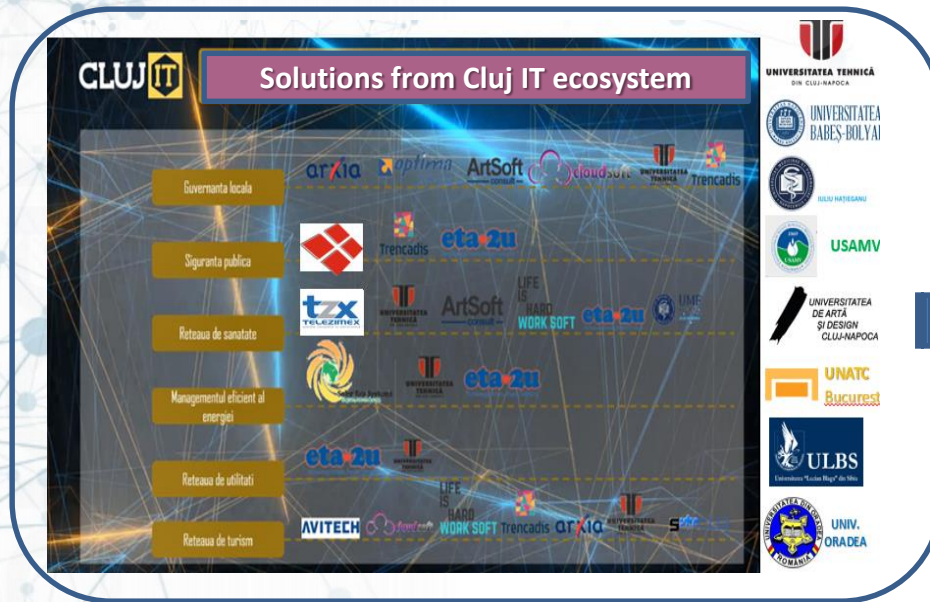
**BRAINED CITY**  
*more sustainable living*

CLUJIT

**CLUJ IT**



# Cluj IT – Smart Cities of Romania Champions



**BRAINED CITY**  
more sustainable living

CLUJ IT

**CLUJ IT**



CLUJ **IT**  
**BRAINED CITY**  
*more sustainable living*

# Trademark of the Cluj IT Cluster



CLUJ **IT**  
**BRAINED CITY**  
*more sustainable living*



**CLUJ **IT****



# Viziunea Generala a Cluj IT privind contextele de Smart/Intelligent/Brained City

- ❑ Evoluție subtilă a vieții noastre către noi paradigme, pe care suntem obligați să le gestionăm
- ❑ Investiții în capitalul uman, realizate pentru a susține dezvoltarea economică într-un context de înaltă calitate a vieții
- ❑ Context vital de ecosistem urban eco-eficient
- ❑ Mediul urban devine un mediu în care toate componentele și nivelurile sunt armonizate printr-o informatizare integratoare și comprehensive

➔ *Concept inovator de comunitate ecologică urbană complet informatizată, dedicat sub paradigma „networked ecological city”*

# Cum se materializeaza?

Abordare Iterativa/scalata:

**Brained City**

**Intelligent City**

**Smart City**

**Digital City**



**BRAINED CITY**  
more sustainable living

**CLUJ** 

# Materializare

## Iteratii/scalare:

Ecosistemul urban este susținut de aplicații TIC / IoT / CPS integrate și interoperabile din cloud-ul urban, capabile să interacționeze autonom între ele ca și cu creierul central, pentru a optimiza dinamic, global și în mod predictiv acțiunile componentelor ecosistemului

Ecosistemul urban este susținut de aplicații TIC / IoT / CPS integrate și interoperabile din cloud-ul urban, capabile să interacționeze autonom între ele pentru a-și optimiza dinamic acțiunile (local)

Ecosistemul urban este susținut de diverse aplicații TIC / IoT / CPS integrate și interoperabile din cloud-ul urban

Ecosistemul urban este susținut de diverse aplicații TIC / IoT / CPS, fără a fi efectiv integrat și interoperabil

Brained City

Intelligent City

Smart City

Digital City



**BRAINED CITY**  
more sustainable living

**CLUJ** 



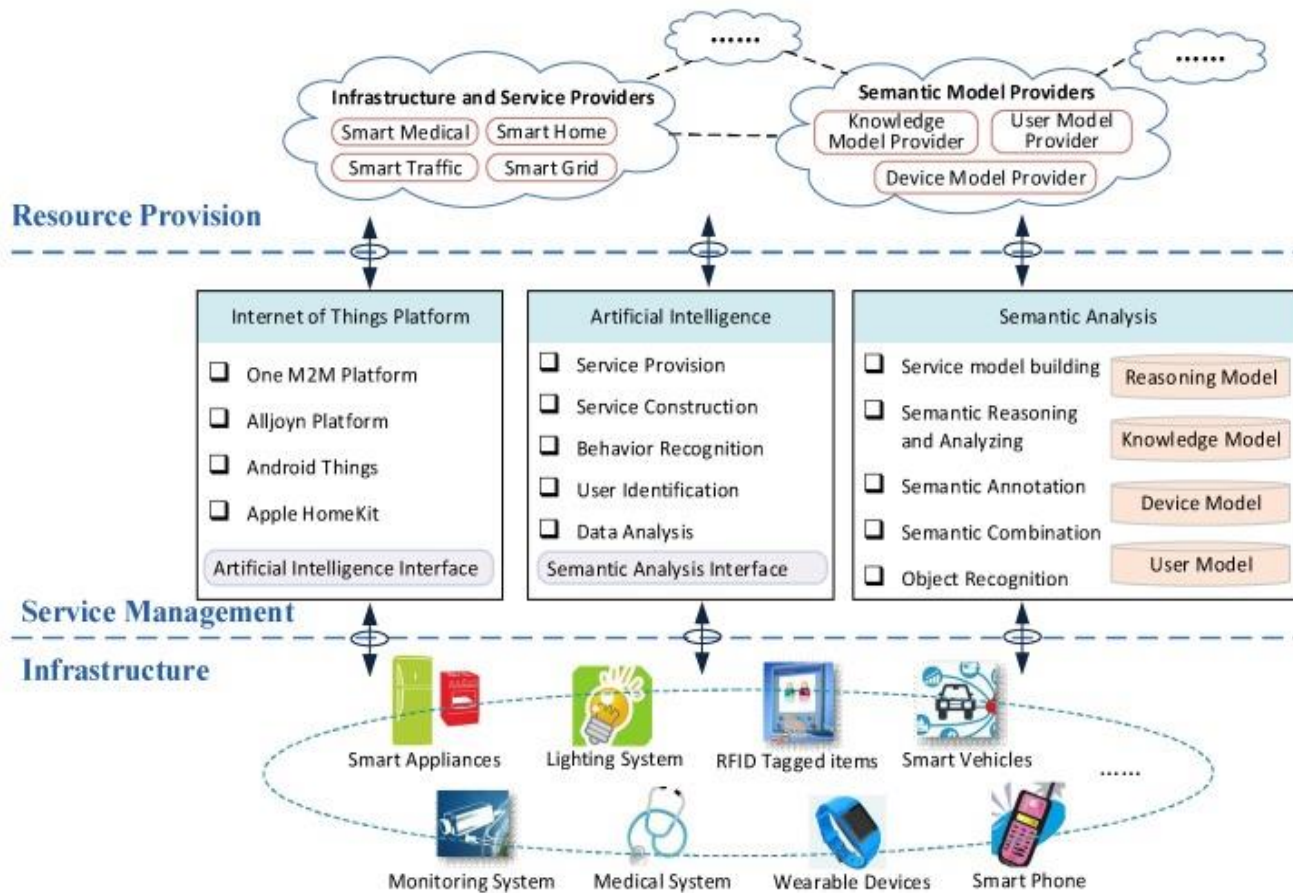
# Implicarea AI la nivelul tuturor pilonilor ecosistemului oraşului smart/ inteligent / brained

- ❖ Starting with 2003-2004 / Academic Partnership of Universities with IBM - "Smarter City"
- ❖ Starting with 2004 / Academic Partnership with Microsoft
- ❖ Starting with 2006 / Academic Partnership with ORACLE
- ❖ Domenii de implicare la cel mai înalt nivel de sofisticare
  - **Robotica**
  - **Autonomous driving**
  - **Virtual Biopsy**
  - Soluții WSN Middleware pentru interconectarea dispozitivelor medicale și colectarea directă a datelor biomedicale prin rețele wireless
  - **Eficienta Energetica**
    - **Intelligent Buildings**
    - **Educatie Inteligenta Digitala**
    - **Intelligent Traffic & Parking**
    - **Smart Environment etc...**



# Citizen centered Brained City

## ❖ Artificial Intelligence-Based Semantic Internet of Things



**Core feature:** Atunci când sunt detectate solicitari de servicii, din partea cetățenilor, raționamentele și analiza semantică sunt activate pentru a identifica servicii conexe

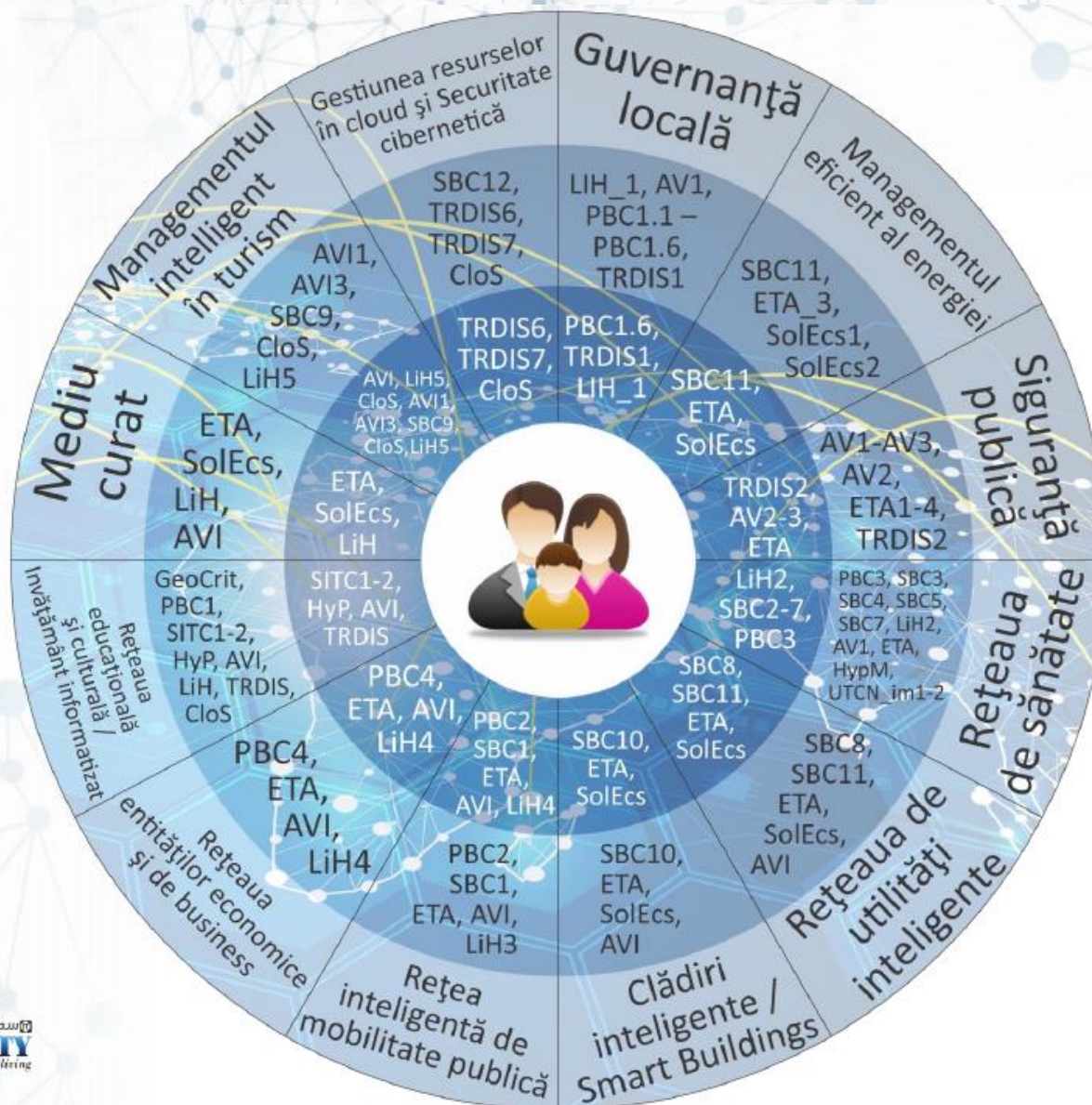


**BRAINED CITY**  
more sustainable living

**CLUJ IT**



# Maparea soluțiilor membrilor Clusterului Cluj IT, orientate pe Cetățean



# • What next ?

We have to get used to them.....





"ProcessPlayer-Public Procurement" is a software platform ensuring the management, evidence and legal compliance in the public procurement activities of the contracting authorities.



The system provides end-to-end procurement assistance of all purchases including also below-threshold acquisitions, including the management of requests, approval processes, planning, award, ordering, reporting, auditing, dynamic generation of documents in the entire workflow, quantitative contract management, correlation with the budget execution records and stock management. Full dematerialization of request generation and approval is ensured through the implementation of qualified electronic signatures.

The system greatly reduces the legal risks associated with the complex procurement activities and provides full control, visibility, traceability, evidence and information correlation, reduces the time and effort required to conduct the specific processes, enhances the communication quality in the institution and the responsibility shown by the public servant in requesting products and services.

The system uses open standards and is based on a Business Process Management approach, the legal regulations (reflecting DIRECTIVE 2014/24/EU) being transposed into BPMN 2.0 workflow models.

The platform is used in Romania by institutions of all sizes and types, including administration, education, health, utility management, cultural institutions.

It can be easily adapted to any national market.

### Impact in the smart cities/communities

Enhancing public procurement, ensuring legal compliance, better control and traceability.

Some of the proven benefits of implementing the system include

- reducing risks by ensuring compliance with the legislative framework
- easy and fast reporting, controlling and auditing of records and activity
- digitalization of acquisition related document workflow and introduction of qualified digital signature
- less effort and time spend by handling specific information and documents
- better internal communication in the institution
- high accountability of compartments in relation to public procurement.



## ARXIA

### PlanningWiz Online 3D Roomplanner

#### Description

PlanningWiz Online 3D software Roomplanner is an online platform for creating and viewing interior or landscape design, urban space plans, offices, and living spaces.

The online planner allows the drawing of plans, whether for indoor or outdoor use, including the placement of walls, doors, windows, flooring, pavement, lawns, the placement of indoor or outdoor furniture from the catalog containing over 1,000 3D models. Plans so constructed can be viewed in 2D and 3D in the browser and allow walk-through navigation to simulate the visitor's sense of that space in the real world. The planner can be used to arrange office space, optimize space utilization, or evaluate the size and amount needed for additional amenities. The planner can also be used to quickly model and visualize public spaces, such as parks, green spaces, and markets.

The Planner allows the rapid configuration and sharing of plans for green areas, squares, playgrounds and other public spaces, enabling fast and easy communication with suppliers and allowing the City Hall to conduct online interactive public consultations on the optimal planning of common spaces in the city.

#### Technical Specifications

The PlanningWiz Online 3D Roomplanner is accessible online. Hosted on Arxia Srl servers, it does not require installation or configuration at City Hall or other local institutions.

The application uses Javascript libraries. The 2D engine is based on SVG and the 3D uses WebGL.

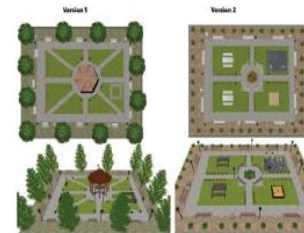
The platform can be easily integrated with online catalogs, e-shops or other web applications, through the provided API.

#### Impact in the smart cities/communities

Efficiency of the activity in the planning and arrangement of green spaces, public spaces with urban furniture, playgrounds, etc., and easier communication with service providers (landscape design) and products (seedlings, outdoor furniture, etc.)

Possibility to carry out public consultations and involve citizens in the process of urban or green space design.

#### Screenshots



Links to video clips: <https://www.youtube.com/watch?v=EHEVHdufk4>

Links to the company page and to the developed solution:  
[www.arxia.com](http://www.arxia.com); [www.planningwiz.com](http://www.planningwiz.com)



Contact:  
[daniel.thorcodean@arxia.com.ro](mailto:daniel.thorcodean@arxia.com.ro)



## Life is Hard

### CITY HEALTH



#### Description

The City Health Platform is part of a solution package called CityApps, for a truly future-connected, safe and intelligent future city. It allows direct involvement of the citizens along with the local administration to find the best solutions in a timely manner to the problems that affect their daily life.

The platform allows citizens to actively report and get notifications about various in-town problems, such as: road conditions, broken lighting systems, non-functioning traffic lights, waste disposal, elements that can endanger the health and integrity of citizens, etc.

At the same time, citizens are notified about the outcome of the notifications made through the City Health application, receiving updates in real time about their status. The City Health Platform is already implemented and actively promoted alongside other Smart City solutions in the pilot phase at the local level. The application is the result of the efforts of Life's Hard's team in creating an intelligent ecosystem of connected solutions, configurable for every urban need.

#### Technical Specifications

- Angular 1.6.5, Bootstrap 3.3.7
- Google Maps package
- Nodejs
- Firebase

#### Impact in the smart city community

As a result, the City Health platform is a good means of assessing the problems citizens face when it comes to infrastructure quality of life in the city.

- Citizens can report problems, they can vote for priority issues already reported.
- The City Hall may prioritize problem solving according to the number of reports for the issue or the number of votes. It can be more responsive to the needs of citizens.
- Citizens can also receive information about any work that may be done on certain days or hours, and which may affect them; they can access information about quality of life: air quality, crime levels, and access to information about the number of firefighters and rescue operations



## Life is Hard

### CITY ALERT

LIFE  
IS  
HARD  
WORK SOFT

#### Description

The CityAlert application notifies citizens and visitors of the city about the events and works that take place and which influence the development of traffic and other activities in the city.

CityAlert was created to send information / notifications about works, events and public events and other important public interest notifications

The virtual assistant solution of the city contains the following modules:

#### 1. Admin:

It represents the management module and offers the following functionalities and settings:

- Traffic restrictions - WORKS: works performed in the public domain of the municipality and influencing the road traffic;
- Traffic restrictions - EVENTS: organizing events and public events that influence road traffic by closing down streets or restricting access in certain areas;
- Other important notifications - Major Public Interest Releases sent by the City Hall and / or Emergency Situations

#### 2. Citizen Mobility Application

The Mobile and IOS Mobility app for citizens offers the following functionality:

- allows real-time map viewing of events signaled by notifications sent by the municipality;
- allows filtering of content transmitted by the municipality by setting specific locations and different categories of notifications
- allows notification of the application user as a "push notification";

#### Technical Specifications

- Angular 1.6.5, Bootstrap 3.3.7
- Google Maps package
- Firebase
- NodeJS, MySQL

#### Impact in the smart city community

- The application sends real time notifications to all city citizens.
- Displays locations in the city where events occur
- Warns about circumventing areas or taking action in case of major emergencies.
- It informs you of everything that's going on in your town.



Links to the company page and the developed solution:  
[www.cityapps.ro](http://www.cityapps.ro)  
[https://www.lifeishard.ro/solution\\_services/smart-city-solutions/](https://www.lifeishard.ro/solution_services/smart-city-solutions/)



Contact:  
[cityapps@lifeishard.ro](mailto:cityapps@lifeishard.ro)  
 tel: +40735 311 564





## Hyper Media

### SmartCommunity/Administration Platform

#### Description

The Implementation of a Smart Community solution has as main objective to increase the performance of the local and county administrative apparatus, transparency of public institutions from the perspective of the community (open administration) and to create a favorable environment for the development of the local economic environment, respectively the promotion of modern entrepreneurship (smart business).

Once these facilities have been provided, we can talk about the quality of life standards guaranteed by implementing a wide range of intelligent services such as e-inclusion, smart education, e-culture, or advanced healthcare. The SmartCommunity/Administration Platform realized by Hyper Media – member of Cluj IT Cluster, consisting of the components HyperMeeting, HyperWebinar, HyperEDU, ContentAuthoring Tool, HyperCaaS, HyperEvents, is part of the Smart City Solutions package of Cluj IT Cluster, and offers through its components the following features:

- HyperMeeting can be easily adopted in public institutions as a way of inter and intra-departmental video collaboration for increasing staff efficiency, consulting, or vertical areas such as education, health, finance, accounting
- HyperWebinar is an efficient, stable and secure environment for managing and delivering multimedia content. In the public sector, it can be easily adapted to the needs of communicating with citizens in order to disseminate useful information to them and / or to quickly capture more than clear feedback about local government initiatives in a synchronous manner
- ContentAuthoring integrates a set of software tools for managing multimedia content and delivering it in compact, web-based format. In the administration, it can be used to develop value-added content for informing citizens and promoting community programs asynchronously
- HyperEdu, HyperTraining, Course Authoring Tool, and HyperBook provide support for educational component related to administrative activities
- HyperCaaS API provides features to integrate custom collaboration video tools based on users' communication needs, both at the framework level and with the software systems of public institutions
- HyperEvents is a personalization of HyperWebinar for organizing special events such as conferences with a large number of parallel sessions, each involving a large number of participants per session, or promoting products and / or services of general interest with a very numerous audience.

#### Technical Specifications

##### WAN Acces

- Response time < 120 ms
- Bandwidth needed to access collaborative sessions through collaborative video tools: 512 – 1024 kbps
- Bandwidth required to access interactive sessions through interactive components: 512 kbps

##### 4G Acces

- Response time < 200 ms
- Bandwidth needed to access collaborative sessions through collaborative video tools: 512 – 1024 kbps
- Bandwidth required to access interactive sessions through interactive components: 512 kbps

#### Impact in the smart city community

The Implementation of the Smart Community concept ensures the efficiency of the local administrative act, the transparency of public institutions from the perspective of the community (open administration) and the creation of a favorable context for the development of the local economic environment and the promotion of entrepreneurship through modern methods (smart business). It also aims at covering the discrepancies between the social stratifications, respectively the lack of communication between the generations and the differences between the demographic categories, regardless of the difficulty of integrating people with problems in society and the shortcomings they face.

All of these will make a significant contribution to increasing the trust of the population in public institutions.



Links to video clips: <https://youtu.be/vra3U9eWm40>

Links for download (Android, IOS, WIN): <https://www.hypertalk.net/ht-mobile>

Links to the company page and the developed project: <http://www.hypermedia.ro/>



Contact: [cosmin@hpm.ro](mailto:cosmin@hpm.ro)



## Hyper Media

### Smart Community/Inclusion Platform

#### Description

The SmartCommunity/Inclusion Platform realized by Hyper Media – member of Cluj IT Cluster, consisting of the components HyperMeeting, HyperWebinar, HyperEDU, ContentAuthoring Tool, HyperMed, is part of the Smart City Solutions package of Cluj IT Cluster.

The implementation of a Smart Community solution has as a specific objective the increase of the quality of life and the implementation of a range of services such as e-Inclusion, smart education, e-culture, or advanced healthcare.

With its components, the SmartCommunity / Inclusion package offers the following features:

- HyperMeeting can be easily adopted in public institutions and business entities to increase the efficiency of staff involved in the social inclusion program
- HyperWebinar represents an efficient, stable and secure environment for managing and disseminating information and knowledge in special events under the Social Inclusion Program. It also allows for faster capture of feedback more than eloquent about e-inclusion initiatives.
- ContentAuthoring integrates a suite of software tools aimed for content management and delivering in compact, web-based format.
- HyperEdu, Course Authoring Tool and HyperBook allow implementation of the inverted classroom concept tailored to the social inclusion program.
- HyperMed is an extension of HyperMeeting for the medical field that provides smart healthcare features tailored to the rigor of the social inclusion program.

#### Technical Specifications

##### WAN Acces

- Response time < 120 ms
- Bandwidth needed to access collaborative sessions through collaborative video tools: 512 – 1024 kbps
- Bandwidth required to access interactive sessions through interactive components: 512 kbp

##### 4G Acces

- Response time < 200 ms
- Bandwidth needed to access collaborative sessions through collaborative video tools: 512 – 1024 kbps
- Bandwidth required to access interactive sessions through interactive components: 512 kbp

#### Impact in the smart city community

By implementing the e-Inclusion strategy, the quality of life and a certain level of physical and mental health are ensured, the coverage of the discrepancies between the social stratification, the lack of communication between generations and the differences between the demographic categories, regardless of the difficulty of integrating people with problems into society and the shortcomings they face.



Links to video clips: <https://youtu.be/VraJ9seWm40>

Links for download (Android, iOS, WIN): <https://www.hypertalk.net/ht-mobile>

Links to the company page and the developed project: <http://www.hypermedia.ro/>



Contact: [cosmin@nfm.ro](mailto:cosmin@nfm.ro)



## Cloud Soft

**ICloud Solution – digital e-community services**



### Description

The ICloud Services solution platform realized by CloudSoft - member of Cluj IT Cluster, is a component of the e-administration/ e-community pillar of the Smart City solutions package of the Cluj IT cluster members, is a cloud-based IT platform, which allows meeting demand and supply in a virtual environment.

The benefits of such a platform are as follows:

- use of nomenclatures to define service categories
- use of nomenclatures to define different types of beneficiaries and suppliers
- predefining and managing users, both corporate clients and individual clients, including the transfer of information between suppliers and beneficiaries
- generating synthetic and analytical reports based on the information and services provided, including the monitoring of customer feedback
- extracting data and statistical reports at both the web and mobile application level
- cloud-based online access for platform beneficiaries and customers using security systems
- resource/user level data sharing, depending on the role, with access to specific secure areas.

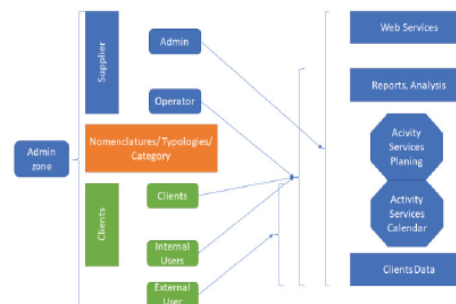
### Technical Specifications

There is no need for installation, advice, special equipment or resources in the Cloud from the local government, but only cooperation with local institutions to promote service providers (tourism, events, sports, beauty, medicine, technical services).

### Impact in the smart cities/communities

- Facilitate the assessment of the quality of private services offered to citizens
- Facilitate the promotion and online identification of bidding types of services
- Easy access to planning, organizing and solving problems through efficient and qualitative services.

### Functional Diagram



Links to the company page and to the developed project:  
[www.cloud-soft.eu](http://www.cloud-soft.eu)



Contact:  
[ovidiu.domsa@cloud-soft.eu](mailto:ovidiu.domsa@cloud-soft.eu)

## UNLOQ

### UNLOQ Authenticate



#### Description

UNLOQ Authenticate is a Passwordless authentication solution that helps companies increase their cybersecurity by moving away from password-based authentication and turning to Multi Factor Authentication. This allows them to stay protected from threats such as password theft, brute force, man-in-the-middle and server breach.

The solution provides:

- Multiple authentication methods

User authentication can be performed through Push notifications, Time-based One-Time Password and/or Email.

- Firewall restrictions

Authentications, authorisations or encryption key requests can be allowed or denied based on previously determined IP range or Geo rules.

- Device deactivation

All communication between users' devices and UNLOQ servers is encrypted.

- Customised login

Authentications, authorisations and notifications can be customised to suit specific brand requirements.

#### Technical Specifications

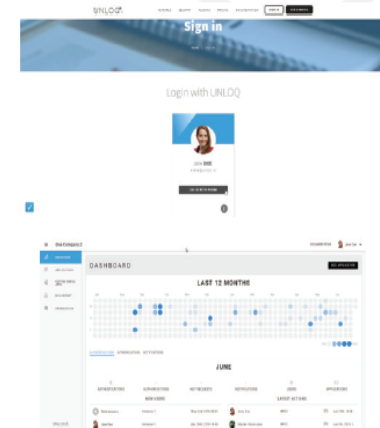
The solution is Software as a Service (SaaS). It doesn't require any equipment from the client.

#### Impact in the smart city community

**Higher security.** Securitate superioară. The distributed authentication system UNLOQ Authenticate provides increases the security of digital properties.

**User convenience.** Secure authentication is performed at the touch of a button, without requiring users to remember any passwords, hence eliminating the risk of lost or stolen credentials.

**Cutting-edge technology.** We use best in class security protocols to ensure complete user privacy, and bring compliance to personal data security regulations closer.



Links to video clips: [https://www.youtube.com/watch?v=b8u\\_B\\_DUtK](https://www.youtube.com/watch?v=b8u_B_DUtK)  
Links to the company page and the developed solution: <https://unloq.io/>  
<https://unloq.io/login>



Contact:  
Mircea Patachi - [mircea@unloq.io](mailto:mircea@unloq.io)



## UNLOQ

Calendis



### Description

Calendis is a scheduling management platform that allows users to make online appointments to registered organizations. Scheduling is synchronized in the organization's calendar within its availability limit. Each time an appointment is made, users receive a notification SMS or email with the appointment's date, time and location, so no phone confirmation is needed. Scheduling can be done in just a few steps through the Calendis client account.

The solution can be used for appointment management through:

**Smart scheduling calendar**

Appointments can be done via the Calendis desktop, mobile, or tablet calendar, taking into account the real occupancy level and avoiding errors or overlaps in the program.

**E-mail and SMS notifications**

Allows automatic sending of SMS and reminder emails of scheduling. This can reduce the number of undesired windows in the schedule.

**Customers / citizens database**

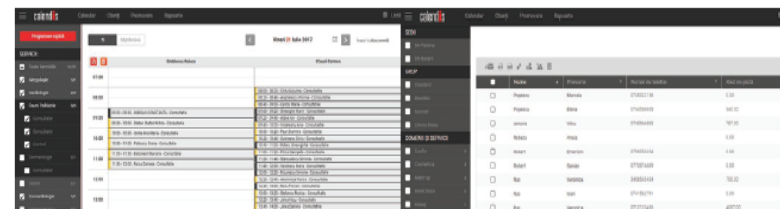
Customers scheduled through Calendis are automatically entered into the database, where can be added documents and mentions with regards to them, can be organized into groups, and keep all information about them easily available.

### Technical Specifications

The solution is Software as a Service (SaaS). It doesn't require any equipment from the client.

### Impact in the smart city community

- Flexible creation and organization of appointments.
- The ability to add multiple headquarters, business areas, services and service packages
- The ability to set the work schedule for each week
- Create recurrent appointments
- Real-time update of the calendar for each new change or appointment
- Filters that make it easy to search for appointments by time, location, employee and service
- The option to determine the average duration of each service and the possibility to modify it for each individual appointment
- Customer notification via SMS and emails with details of their appointments
- A clear record on customers
- Creation and management of customer groups such as temporary or permanent Blacklist groups
- Importing a pre-existing list of clients
- Reports on appointments, services, customers, income
- Record revenue directly in Calendis

Service	Employee	Start Time	End Time	Duration
Procedura de...	Mircea	14:00:00	15:00:00	1:00
Procedura de...	Mircea	15:00:00	16:00:00	1:00
Procedura de...	Mircea	16:00:00	17:00:00	1:00
Procedura de...	Mircea	17:00:00	18:00:00	1:00
Procedura de...	Mircea	18:00:00	19:00:00	1:00
Procedura de...	Mircea	19:00:00	20:00:00	1:00
Procedura de...	Mircea	20:00:00	21:00:00	1:00
Procedura de...	Mircea	21:00:00	22:00:00	1:00
Procedura de...	Mircea	22:00:00	23:00:00	1:00
Procedura de...	Mircea	23:00:00	00:00:00	1:00



Links to video clips: The following videos are in Romanian:

[https://www.youtube.com/watch?v=C1heKaJ\\_1c](https://www.youtube.com/watch?v=C1heKaJ_1c)

<https://www.youtube.com/watch?v=d5nuHUEAgUY>

<https://www.youtube.com/watch?v=XyLnu6KmE>

Links to the company page and the developed solution: <https://www.calendis.ro/>



Contact:

Mircea Datachi - [mircea@unloq.ro](mailto:mircea@unloq.ro)

## Parking Plus

Parking +



### Description

Parking Plus software platform, realized by Parking Plus/a spin-off of PITECH PLUS- member of the Cluj IT Cluster, is a component of the Intelligent Traffic and Parking pillar of the Smart City package of the Cluj IT cluster members.

The Parking Plus platform represents an ecosystem of software solutions (web sites, mobile applications) and proprietary Smart Access Box devices for optimized use of parking and data collection in mobility. The solution ensures:

- Increasing the number of parking places for public use by including in the public circuit private parking spaces in secured spaces with barrier
- reducing the traffic generated in the city by drivers looking for a parking space
- reducing pollution
- increased revenue from parking fees
- optimized use of the car parkings by making reservations and suggestions of the closest parking spaces
- possibility to connect with vehicle detection sensors to notify the real-time availability of parking spaces
- Cloud based management of all functionalities.

### Technical Specifications

Prior to implementing the solution, digital cartography is required with the Digital Mapping Module included in the ParkingPlus package.

### Impact in the smart city community

Decrease traffic, reduce pollution, reduce time spent in searching a parking space, increase cashing, real-time reports, optimal decisions, communication and collect appreciation in the relationship with the citizen.

### Screenshots



Links to video clips:  
<https://play.google.com/store/apps/details?id=com.rodeapps.parkingplus>  
 Links for download (Android, IOS, WIN):  
<https://itunes.apple.com/jp/app/parking-plus/id105251948>  
 Links to the company page and the developed project: [www.parkingplus.ro](http://www.parkingplus.ro)



Contact: [cristian.ureche@parkingplus.ro](mailto:cristian.ureche@parkingplus.ro)





## Life is Hard

### CITY PARKING

#### Description

The CityParking application is a virtual parking assistant. This allows real-time visualization of the availability of parking spots in the city, specifying also the type of parking space.

Furthermore, the CityParking parking assistant guides the user to the nearest parking facility in order to reduce as much as possible the time to search for an available space. The application was developed within the Smart City suite of solutions offered by Life is Hard S.A, called City Apps and represents the congeries of its efforts and vision to contribute to improving the quality of everyday life of the citizen, as well as the experience of visitors to the city. After all, a few minutes saved in traffic are worth more time spent with your loved ones or doing a nice activity.

#### Technical Specifications

City Parking is a SaaS platform consisting of a mobile application (Android and iOS) and a Cloud administration application.

The platform features two mobile apps created and available for free on Google Play and the App Store for Android 4.0+ or iOS users.

AVA for android, swift for iOS

Google Maps android SDK and Google Maps iOS SDK,

Google Fused Location API for android and native CoreLocation for iOS

Push notifications: Firebase Notifications + APNs for iOS, Firebase Notifications for android

NoSQL database: Firebase

#### Impact in the smart city community

- Improving parking access, with a direct result in de-congestion.
- Because the user knows what parking facilities are free or where parking places are available in a particular parking, drivers no longer drive to locations that are no longer available.
- This reduces traffic jams, pollution and increases the citizen's satisfaction.



Links to the company page and the developed solution:  
[www.cityapps.ro](http://www.cityapps.ro)  
[www.cityparking.ro](http://www.cityparking.ro)  
[https://www.lifeishard.ro/solution\\_services/smart-city-solutions/](https://www.lifeishard.ro/solution_services/smart-city-solutions/)



Contact:  
[cityapps@lifeishard.ro](mailto:cityapps@lifeishard.ro)  
 tel: +40735 311 564

## Telezimex



### Presto Ecosystem Parking Solution by IEM

#### Description

Global parking solution for smart cities. With Presto, IEM created a set of products and services making its urban on-street parking offering the most complex in the industry. IEM's use of state of the art technology provides smart and creative tools for the operator and offers a pleasant parking experience to the motorist.

IEM engineers and produces all devices required to capture on-street parking data: parking meters, smart occupancy sensors, e-payment terminals and smartphone apps. All these systems and devices collect billions of relevant data, disclosing motorist preferences and deliver data to the operator to support parking policy definition.

#### Technical Specifications

IEM is a Swiss producer of parking equipments, mostly parking meters and parking sensors. All the equipment works on solar energy. The parking meters have various configurations: they support the payment either by credit card or cash, they can have coloured display or monochrome, touchscreen or without touchscreen and can generate receipt through a printer. They can incorporate QR systems and allow direct payment of the fees. As an option, the parking meters can be connected through main power supply.

The parking sensor can be installed apparently or flash mount. They communicate via LoRaWAN and the lifetime of the battery is 6-8 years. The sensors communicate in real-time with the digital platform, and, in this way, it can provide a real-time map of the most occupied parking lots, medium occupied parking lots and free parking lots. This technology offers, of course, information about the cars parked illegally.

#### Impact in the smart city community

Nowadays, in big cities, on-street parking became a real problem, but in the same time, also a very important financial revenue for the public authorities. That's why it deserves the attention of the local Government. An investment in the parking system is worth if it can generate revenue which can be collected and controlled. That is the purpose of our solution. Advantages:

- Rising awareness about the public parking lots - citizens will understand that they can park only where they allowed to park and that they must pay for the time the car is parked on these parking lots;
- The average time of parking will be reduced so there will be more parking lots in the city;
- Reduces traffic congestion;
- Given the fact that all the information is available online, we can observe trends and build strategies;

This system can also contribute to:

- The fast growth of the parking revenues;
- The identification of the tracked cars.



Links to video clips:

<https://www.youtube.com/watch?v=K2TumaeU8M>

Links to the company page and the developed project:

<http://www.iemgroup.com/solutions-products/presto-ecosystem/>



Contact:

Isay Mikos, [isay.mikos@telezimex.ro](mailto:isay.mikos@telezimex.ro)





## ArtSoft Consult

**ElderCare - Assistant for caregivers of elderly people**

### Description

ElderCare is a software system which aim is to ease the life of elderly, their families and their caregivers. The main functions of the system are:

- Planning caregiving activities (medication, feeding, procedures), alerting caregivers when to perform activity, registering data about these activities in a simple, user-friendly way.
- Recording the parameters provided by the medical devices used for monitoring and issuing alerts for the family members, caregivers or doctors if the values of the parameters are out of range (eg. High blood pressure, heart rate or blood sugar level out of normal range, etc.)
- Divertment center for elderly people through a tablet computer or smartphone (games, communication software, managing connected devices like the lighting system, TV or audio equipment, etc.).

ElderCare has an administration extension that allows the configuration of the application to be used in a facility for elderly care. This extension allows the definition and configuration of all the necessary data used: building levels, rooms, patients per room, shifts, staff, activity plan, etc.

### Technical Specifications

The system is built as a SaaS client-server application, available in private cloud. The user interface is developed for desktop, laptop and mobile devices. The system allows the connection of different medical devices used for monitoring medical evolution of the elderly using an IoT gateway. The entire system is highly secured to protect user's data and allows auditing of the events occurred and actions performed.

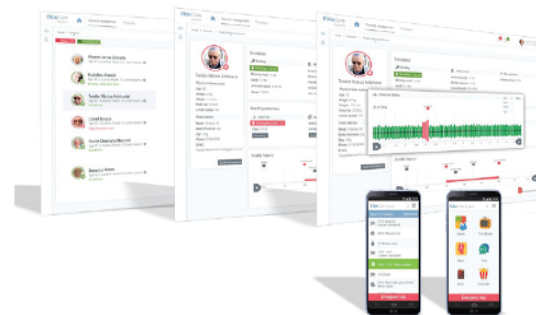
### Impact in the smart cities/communities

Population aging is a global issue. One concern is a shortage of hospital beds, making it necessary to provide more complex care to the elderly with chronic or comorbid health conditions while they are living at home. At the same time, an aging population also reduces the availability of caregivers. It has been estimated that more than 99% of the elderly over the age of 65 have expressed a desire to stay at home as long as possible. ElderCare creates the technological framework for those who would like to age gracefully in their own homes. It can be easily used also in hospitals, in homes for the elderly.

Beneficiaries and users of the developed technical solution are:

- Elderly people;
- Family members;
- Hospitals;
- Medical staff;
- Care givers.

ElderCare System



Links to the company page and the developed project:  
[www.artsoft-consult.ro](http://www.artsoft-consult.ro)



Contact: [office@artsoft-consult.ro](mailto:office@artsoft-consult.ro)



## Hyper Media

Smart Community/Smart Medicine Platform

### Description

The Smart Community/Smart Medicine Platform realized by Hyper Media – member of Cluj IT Cluster, consisting of the components HyperMed, HyperMeeting, HyperWebinar, HyperEDU, ContentAuthoring Tool, HyperCaaS, HyperEvents, is part of the Smart City Solutions package of Cluj IT Cluster.

The implementation of the HyperMed solution, has as main objective the efficiency of the medical act and the increase of the quality of life (smart healthcare).

HyperMed is an extension of HyperMeeting for the medical field, that provides collaborative functionality to healthcare professionals: video communications, real-time sharing of resources and medical equipment during diagnosis, remote interaction of type (1)physician to physician or (2)physician to medical equipment.

### Technical Specifications

#### WAN Access:

- $C < 120$  ms
- Bandwidth required to access collaborative sessions through collaborative video tools: 512 – 1024 kbps
- Bandwidth required to access interactive sessions through interactive components: 512 kbps

#### 4G Acces

- Bandwidth required to access interactive sessions through interactive components  $< 200$  ms
- Bandwidth required to access collaborative sessions through collaborative video tools: 512 – 1024 kbps
- Bandwidth required to access interactive sessions through interactive components: 512 kbps

### Impact in the smart city community

By implementing the HyperMed solution, it relies on the introduction of collaborative and interoperability methodologies at the level of both public and private medical institutions to increase the efficiency of the medical act and the quality of life. Hospitals, private clinics, family medicine and occupational medicine cabinets are considered.



Links to video clips: <https://youtu.be/va3U9eWm40>

Links for download (Android, IOS, WIN): <https://www.hypertalk.net/it-mobile>

Links to the company page and the developed project: <http://www.hypermedia.ro/>



Contact: [cosmin@hpm.ro](mailto:cosmin@hpm.ro)



## Life is Hard

PEDITEL

LIFE  
IS  
HARD  
WORK SOFT

### Description

Medical advice dedicated to children, available 24/7 and free, initiated and financed by the Romanian Parents foundation.

Peditel 1791 is directed to every parent that wishes to get a professional medical advice for any non life threatening illness of his children. The counsel given by the physician is directly and safely applicable at home. For each case, that our medic thinks that there are related dangers, the parent is advised to call 112/the national emergency number.

For international callers the number is : +40377771111

PEDITEL 1791 – the pediatric call center that gives free, 24/7 advice is operated by the Romanian Parents Foundation, headquartered in Cluj.

The service facilitates the communication between parent and doctor, identifies and deals with home applicable cures, but directs parents to hospitals in cases of severe illnesses.

PEDITEL 1791 has a team of 15 experienced physicians, that use 26 medical protocols for each of the specific child disease from fever, diarrhea, swelling, vomits to head accidents.

### Technical Specifications

PEDITEL 1791 is a short number (1791) that runs through Voice Over Internet protocol (VOIP) that delivers voice communication over internet. The system uses a cable stable connection, a soft phone and a medical program.

Simple and efficient the peditel software allows unlimited connections and is linked to a database that saves automatically the calls. The system also uses encryption for the data confidentiality. Peditel 1791 has the same costs as a usual number for the user.

#### The Hardware:

- Asterix/PBX server (open source communication server)
- Working station with soft-phone application installed, that connects to the server using SIP protocol
- Medical software with files for each patient and 26 world health organization approved protocols, that guide the physician when questioning the callers . Each file is classified considering the medical complexity, from simple to complex:

1. Home treatment
2. Seeing a physician in 48-72 hours
3. Hospital presentation in 2 hours
4. Emergency call 112 immediately.

#### Number of calls to PEDITEL 1791:

January 1st 2014 - June 30th 2018 - 124.989 total calls with only one medic per shift

January 1st \_ June 30th 2018- 27.805 calls

2017 - 53.339 calls

2016 - 25.090 calls

2015 - 11.907 calls

2014 - 6.848 calls



Links to the company page and the developed project:

[www.parinticiujen.ro](http://www.parinticiujen.ro)

<https://www.facebook.com/peditel.ro/>



Contact:

Initiator: PEDITEL 1791.

e-mail: [cristina.grigore@parinticiujen.ro](mailto:cristina.grigore@parinticiujen.ro)

### Technical University Cluj-Napoca/WSN Team



#### Middleware for Wireless Smart Sensor Networks

#### Description

Between the new paradigms driving the evolution towards Smart Cities, the components related with the health systems play an important role. The E-health concept is very important and this concept must be one of the first to be tackled when developing a Smart City ecosystem.

The solution WSN Middleware developed by the WSN team of TUCN/which is founding member of Cluj IT Cluster- aims to allow the interconnection of any medical equipment, whatever its medical standard, for the data acquisition, data storage and interpretation. These will be done in an efficient and secure way. Efficient, because the costs for acquisition and operation will drop, same for the needed time to integrate new equipment, minimizing the risk associated with the lack of interoperability between various equipment.

#### Technical Specifications

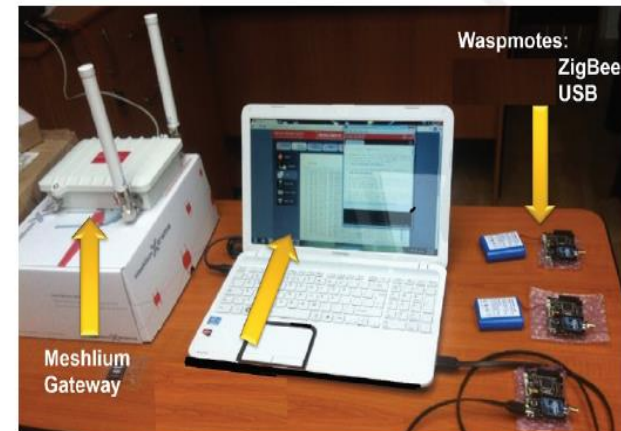
- The Middleware for Wireless Smart Sensor Networks provide an uniform way of communication between the medical equipment, the patients and the specialized staff, in an independent manner whatever the technology and producer are.
- The product design is modular and flexible, being defined a set of abstract notions, to hide the complexity and heterogeneity of the medical devices.
- The testing strategy is based on WSN emulators and simulators.

#### Impact in the smart cities/communities

By integrating different wireless communications techniques, the WSN Middleware Platform provides a layered modular and scalable design.

The main benefits brought by the system call the problems of medical devices interconnection, medical data acquisition, storage and processing, smart medical devices.

There will be provided support for the development of scalable and secure medical systems for patients monitoring and for providing adequate medical services.



Links to the company page and the developed project:

[www.utcluj.ro](http://www.utcluj.ro)

[https://research.utcluj.ro/it\\_files/research/Research%20Domain/Computer%20Science/](https://research.utcluj.ro/it_files/research/Research%20Domain/Computer%20Science/)

DadariatVasile\_v2.pdf



Contact:

[vasile.dadariat@cs.utcluj.ro](mailto:vasile.dadariat@cs.utcluj.ro)

[bogdan.iancu@cs.utcluj.ro](mailto:bogdan.iancu@cs.utcluj.ro)



## Life is Hard

OKEY

LIFE  
IS  
HARD  
WORK SOFT

### Description

OKEY is an online platform that aims to support entrepreneurs by giving them a significant plus of efficiency in managing their business projects. OKEY addresses new, small and medium-sized companies in Romania. The platform is structured into modules, each module being a business management tool. Available modules are: invoicing, customer and sales management, calendar / agenda / task management, document manager, mailing list.

The differentiation element compared to other similar solutions on the market consists precisely in the fact that the modules available within the platform are integrated, the information once saved in a module is automatically taken over in all the other modules. Thus OKEY helps entrepreneurs to gain more time for their business projects or their personal projects.

The billing module has the following main functionalities: issuing bills, receipts, notices, currency, product and service nomenclature, e-mail and SMS notification to customers when issuing invoices, tracking and allocating receipts, house register, reports and more.

The customer and sales management module has the following main functionalities: managing potential clients and active clients, managing sales opportunities, contracts, and sales department activities. The sales pipeline, conversion rates, can be seen through reports, graphs, and analyzes.

The calendar allows you to have organized agenda, to know at each moment what tasks you have to accomplish, you can assign tasks to your team members and follow their activities. The application sends notifications by email at the time of the activity definition and before the activity.

The document module allows document management (files, folders): upload, delete, modify, label, search, email, directly from the application. It also provides a cloud storage space between 10-30Gb, depending on the tariff plan.

The mailing list allows you to manage your entry / exit records in an organized, electronic manner. You are looking for and quickly find any recorded document. The application automatically generates your registration numbers.

### Technical Specifications

In order to enjoy the modules within OKEY, a business must create an account on the platform by accessing the link <https://portal.eokey.ro/registration>. Once the account has been created and defined the company-specific settings, documents can be issued and the platform can be further utilized at its maximum capacity.

The OKEY platform can be accessed from any PC, laptop or tablet in the browser, the only condition is that the device is connected to the Internet. Using the OKEY platform does not involve installing programs on users' devices.

Several users with different roles can be defined within the OKEY platform, with different levels of access to modules and data entered in the application.



Links to the company page and to the developed solution:  
OKEY Platform Overview: [www.eokey.ro](http://www.eokey.ro)  
New account registration page: <https://portal.eokey.ro/registration>  
Platform Access Page: <https://portal.eokey.ro/login>  
Support page: <http://help.eokey.ro>



Contact:  
[support@eokey.ro](mailto:support@eokey.ro)  
tel: +40736.101.482



## Hyper Media

### Smart Businesses Package

#### Description

The package Smart Businesses realized by Hyper Media – member of Cluj IT cluster, consisting of the components HyperMeeting, HyperWebinar, HyperEDU, ContentAuthoring Tool, HyperCaaS, HyperEvents, HyperCareers, is part of the Smart City Solutions package of the Cluj IT Cluster.

The implementation of this package has the main objective to create a favorable environment for business entities that propose the development of the local/urban economic environment, and the promotion of entrepreneurship through modern methods (smart business). With its components, this package provides the following features:

- **HyperMeeting** can be easily adopted in business entities to increase the efficiency of staff involved in large-scale projects, consultancy, finance, telemedicine or accounting.
- **HyperWebinar** is an efficient, stable, and secure environment for managing and delivering multimedia content in marketing sessions or special events (up to thousands of participants).
- **ContentAuthoring** integrates a set of software tools to manage multimedia content and deliver it in compact, web-based format.
- **HyperEdu, HyperTraining, Course Authoring Tool and HyperBook** facilitate access by private employees to high quality education services / content
- **HyperCaaS API** offers customized collaboration tools for integration of custom collaboration tools based on the user's communication needs at both the framework and enterprise software systems such as: web portals, e-business applications (ERP, CRM, etc.), e-learning / training environments, Intranet systems, etc.
- **HyperEvents** is a personalization of HyperWebinar for organizing special events such as conferences with a large number of parallel sessions, each involving a large number of participants per session, or promoting products and / or services of general interest with a very numerous audience.
- **HyperCareers** encompasses the tools to extend the recruitment process to the online environment, while increasing the efficiency of human resource management specialists. HyperCareers includes OnlineRecruiter, which manages job vacancies, candidate profiles, VideoInterview which enables the automation of the first candidate evaluation phase and LiveInterview which facilitates the organization and deployment of non-technical (online) interviews, expanding the recruitment.

#### Technical Specifications

- Web access is provided through mobile devices to synchronous and asynchronous collaborative tools for employees of the ministries involved in dialogue with the business environment
- Web access is provided through mobile devices to synchronous and asynchronous collaborative tools for employees of commercial companies interested in using such interactive solutions

##### WAN Access

- Response time < 120 ms
- Bandwidth needed to access collaborative sessions through collaborative video tools: 512 – 1024 kbps
- Bandwidth required to access interactive sessions through interactive components: 512 kbp

##### 4G Access

- Response time < 200 ms
- Bandwidth needed to access collaborative sessions through collaborative video tools: 512 – 1024 kbps
- Bandwidth required to access interactive sessions through interactive components: 512 kbp

#### Impact in the smart city community

The most important result is the fact that it is favorable to the business entities that aim to develop the local economic environment and to promote entrepreneurship through modern business methods. Also, work efficiency and the continuous development of the human resource, both of the public and private entities (practical skills and abilities, theoretical knowledge, as the case may be) are considered.



Links to video clips: <https://youtu.be/va3U9eWm40>

Links for download (Android, IOS, WIN): <https://www.hypertalk.net/ht-mobile>

Links to the company page and the developed project: <http://www.hypermedia.ro/>



Contact: [cosmin@hpm.ro](mailto:cosmin@hpm.ro)



## Optima Group

Optimal Business Platform



### Description

Optima Group developed Optimal Business Platform as a package of software applications that can be used either as a complete & integrated platform dedicated to FMCG (Fast Moving Consumer Goods) or pharmaceutical companies (producers, distributors and retailers/ drugstore chains), or to entities providing technical field services (periodical maintenance of equipment, on demand repairs, etc.), or as individual applications, according to each customer's needs.

The platform includes the following applications:

- **Optimal Sales&Merchandising** – A SFA (Sales Force Automation) system for sales, trade marketing and merchandising force automation that is a complete solution and one of the most important players on regional SFA market, implemented primarily to multinational companies. The solution is implemented since year 2003 for some multinational companies in Romania, Bulgaria, Albania and Kosovo.
- **Optimal Field Services** – Either an extension of Optimal Sales&Merchandising or a standalone application, this solution covers the additional functionalities for complete management of high value assets and POSMs, and for automation of activities performed by service professionals.
- **Optimal Warehouse** – Allows the complete stock & space management in a warehouse, for all activities performed from the receiving of goods till the delivery to customers.
- **Optimal BI** – A Web-based Business Intelligence application that centralizes a various set of views in relevant dashboards and reports for business indicators, in a manner tailored to the needs of each customer. It includes also a strong forecasting module for sales and marketing campaigns.
- **Optimal EDI** – Implemented also as a Web platform, this is our solution for the automated & validated data transfer from a source entity to a destination one. A regular implementation example is the integration of customers' ERP data with the data from their partners' ERPs (mainly distributors or retailers).

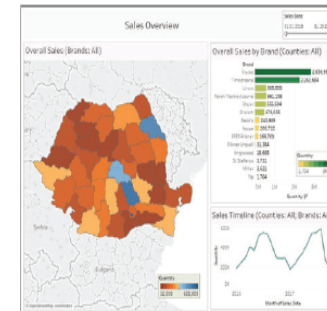
### Technical Specifications

All applications in Optimal Business Platform are based on latest technologies available on the market, including (but not limited to):

- Database: Microsoft SQL, Azure SQL;
- Programming platforms: .NET and ASP.NET Core; ASP.NET Web API 2 and ASP.NET MVC Core 2; Microsoft Xamarin Forms; Angular;
- Operating Systems: Windows, Android, iOS;
- BI Platforms: Tableau Software, Microsoft Power BI.

### Impact in the smart city community

By sustaining business entities of any size from FMCG field to perform daily activities (selling, logistic operations, servicing, collecting external data and preparing meaningful dashboards/reports), Optima's platform has an important contribution to the overall quality of services provided by these entities. The final benefactor is the regular consumer (member of the smart city community), which has the opportunity to get products delivered faster (fresher) and possible in a better condition.



Links to the company page: <http://www.optima.ro/en/home/>



Contact: [ovidiu.pintea@clujit.ro](mailto:ovidiu.pintea@clujit.ro)



## Optima Group & ArtSoft Consult

### Târgul Agro - web-based marketplace for agricultural & food products

#### Description

The software platform Târgul Agro (Agro Trade Fair), developed by OPTIMA and ArtSoft Consult - both members of Cluj IT Cluster, is a component of the e-business pillar of Cluj IT Cluster members' Smart City package, implemented as a web-based marketplace of agricultural products.

The platform aims at bringing together, in an efficient manner, the demand and supply of agricultural and food products, in order to facilitate the delivery of fresh and environmentally friendly agricultural and food products to the citizens of a "smart city".

#### Technical Specifications

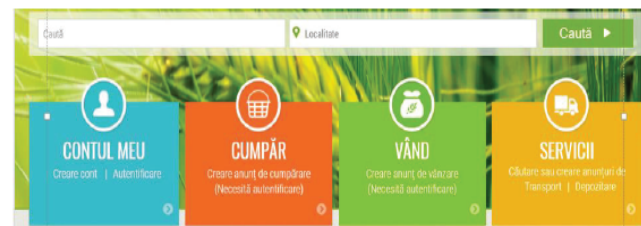
The system is both „business to business” (B2B) and „business to customer” (B2C), implemented in the public cloud and available as SaaS (Software-as-a-Service). The platform is operational at national level ([www.targulagro.ro](http://www.targulagro.ro)), and can be used „as is” by all user categories.

#### Impact in the smart city community

Main user categories of the platform are:

- Agricultural producers (of all sizes and types);
- Companies specializing in the sale, processing and preserving of agricultural products;
- Trade chains and individual shops;
- Restaurants, canteens;
- Transportation companies;
- Final consumers;
- State profile entities (Agricultural Directorates, Agencies for Payments and Intervention for Agriculture, City Halls, etc.);
- Companies specialized in the storage of agricultural products.

Since the interest in healthy living is constantly increasing, Târgul Agro meets the need of the population concerned about correct diet, by providing a complete package of services. The aim of the smart city project is to generate a living area based on the innovative concept of ecological and fully computerized urban community, under the "networked ecological city" paradigm.



Links to video clips: <https://goo.gl/KVbwRX>

Links to the company page and the developed project:

<http://www.optima.ro/en/home/>; [www.artsoft-consult.ro](http://www.artsoft-consult.ro)

<https://www.targulagro.ro/>; <https://www.targulagro.ro/intrebari-frecvente>



Contact:

[ovidiu.pintea@clujit.ro](mailto:ovidiu.pintea@clujit.ro)

[csilia.fulop@artsoft-consult.ro](mailto:csilia.fulop@artsoft-consult.ro)



## Solar Eco Systems

### Intelligent Electricity Networks and Renewable Energy Systems



#### Description

The IT Platform of Intelligent Electricity Networks and Renewable Energy Systems, developed by Solar Eco Systems - member of Cluj IT Cluster, is part of the Intelligent Energy Management pillar of the Smart City solutions package of the Cluj IT cluster members, representing a system of integrated high-capacity storage solutions at the key points connected to renewable sources of electricity (photovoltaic system), which offers:

- network stability
- coverage of the electric charge tips in a more efficient way
- the use of overproduction from renewable sources
- changing the way forecasts and energy production are dimensioned according to the consumer profile
- fixing the production systems from renewable sources in locations with specific needs, eg charging stations for electric transport.

#### Technical Specifications

- for the photovoltaic production system: the implementation of the systems on different types of roofs or terraces requires the adoption of solutions for the structure of the panels, without affecting the roof strength; the notices and modifications for the integration in the electrical system are made according to the legislation in force; concretely, a photovoltaic system will be installed on a building with roof and orientation favorable to the installation, the most accessible locations as roof space are schools, lyceums, kindergartens.
- for energy storage: the need for a foundation for the location of the battery (the size of a 6x3m container and a weight of between 15-60 tons); the notices and modifications for the integration in

the electrical system are made according to the legislation in force; concretely, the installation of a storage system will be placed at a common point of connection for institutions that want to have a photovoltaic production system or power stations for vehicles.

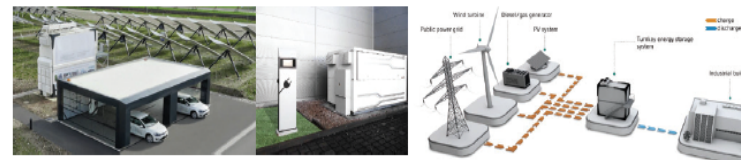
- for power stations: connection to the power grid requires compatibility between the required power and the available power; the implementation of a system is done according to the legislation in force.

Real-time monitoring of these systems from a single point - energy management dispatcher - allows integration and optimization of the system according to the consumer profile.

#### Impact in the smart city community

Benefits for the city:

- Developing renewable production capacities together with a storage system to manage load peaks will increase the share of energy from renewable sources, reducing energy costs, designing and sizing other solutions for future and current consumers. Depending on the installed capacity, up to 50% of the required energy can be covered.
- The implementation of power stations will boost the development of the electric transport industry (buses, cars, bicycles, mopeds), thus reducing the pollution level, developing a new trade area and recognizing the city as a national and international Smart City.



Links to the company page and the developed project:

<http://www.stocarenergie.ro>

<http://stocarenergie.ro/bistem-celcube/>



Contact: Calin Terhesiu: [vanzari@stocarenergie.ro](mailto:vanzari@stocarenergie.ro)

## Solar Eco Systems



IT Platform for Monitoring, Control and Energy Management

### Description

The IT Platform for Monitoring, Control and Energy Management, developed by Solar Eco Systems - member of Cluj IT Cluster, is part of the Intelligent Energy Management pillar of the Smart City solutions package of the Cluj IT Cluster members, based on hardware and software designed by specialists in automation (BMS - Building Management Systems) and in software designed to optimize, streamline and manage energy, with a well-defined goal of achieving a very high level of optimization regarding the intelligent management of the energy resources of a city, irrespective of its size.

The Energy Monitoring, Control and Management System installed in an Energy Data Centre integrated in the Urban Cloud is designed to meet all the requirements of the Energy Efficiency Standard ISO 50001 and meets the requirements of the Energy Efficiency Law.

Software and hardware are designed to identify and define optimal parameters for any type of local government buildings (administrative buildings, schools, hospitals, dormitories, spaces for culture and sports, etc.) as well as other types of buildings and systems from the city for the purpose of energy assessment.

### Technical Specifications

The system occupies a technical room. It needs permanent access to the Internet to communicate with all systems in the city. The monitoring and optimization part is done automatically by the software solution and requires personnel only employed to manage the entire system between institutions.

Real-time monitoring of these systems from a single point - energy management dispatcher - allows integration and optimization of the system according to the consumer profile.

### Impact in the smart city community

Benefits for the city:

- Decisional transparency in current and future investments for the beneficiaries selected in the energy management solution according to the financial and technical parameters.
- Response time for different situations can be reduced significantly, the monitoring and control of the systems can be made in real time and any change can be fixed with minimal resources and in a short period of time.
- The performance improvement and reduction of costs for the functioning and administrative results of the city will generate a positive feedback from other entities and will bring a long term image improvement and city development.



Links to the company page and the developed project:  
<http://stocarenergie.ro/>  
<http://stocarenergie.ro/smart-city/>



Contact: Calin Terhesiu: vanzar@solecs.eu



## Technical University Cluj-Napoca

### Urban Energy Management Platform



#### Description

The Urban Energy Management Platform is an energy consumption and cost monitoring software system running in the cloud.

Specifically, data gathered through BMS (Building Management System) components are processed in cloud through this software platform, generating consumption trends and benchmarking. The data are automatically read from the Building Energy Management System or from existing or additionally mounted blank counter metering.

Methods of data processing and analysis are Monitoring & Targeting (M & T) - Statistical and Measurement & Verification (M & V) methods - according to IPMPV (International Performance Protocol for Measurement and Verification and Demand Response).

The system delivers real-time recommendations to allow action to be taken in a short time based on the information provided.

#### Technical Specifications

The concrete functionalities of the software platform are:

- Statistical processing of consumption data and energy cost;
- Monitoring and targeting (M & T);
- Measurement and verification of energy savings (M & V);
- Adaptive graphical view of energy consumption curves.

Generated outputs (data, information, output status generated):

- Consumption correlation with influence factors, (non) controllable;
- Potential Energy Efficiency Quantification;
- Quantification of energy savings.

#### Impact in the smart city community

- Reduction of operational costs with energy utilities
- Increasing the indoor comfort in public buildings
- Increasing the integration of local renewable energy sources
- Active participation as aggregate prosumer on the energy market with Demand Response system services
- Real-time and optimized energy consumption management
- Aggregation of utilities consumption and centralized acquisition, with advantageous negotiation of energy prices
- The possibility of changing energy flows between public buildings / buildings, optimizing the production balance from local renewable sources and energy consumption.



Links to the company page and the developed project:

[www.utcluj.ro](http://www.utcluj.ro)  
<https://romania-dr-bob-portal.eu/publicportal>



Contact:

[andrei.cecian@ethm.utcluj.ro](mailto:andrei.cecian@ethm.utcluj.ro)  
[dan.micu@ethm.utcluj.ro](mailto:dan.micu@ethm.utcluj.ro)



## Technical University Cluj-Napoca

### Intelligent Buildings

#### Description

The solution consists of an online platform for integrating the monitoring and control systems for intelligent buildings, namely:

- Security system with the intrusion detection system
- Access control system
- Video surveillance system and the intercom system
- Safety system with fire detection system
- Public addressing system
- Lifts monitoring system (where applicable)
- Gas detection and exhaust system, person protection and warning system, smoke exhaust system, smoke detection and exhaust system
- System of backup sources, anti-freeze system and electrical system monitoring system (included in the safety system)
- System of lighting with exhaust lighting and safety lighting (included in the safety system)
- Communication system with voice-data system, television signal distribution system and multimedia system
- Heating / cooling, ventilation and air conditioning system with the meteorological monitoring system and the blinds control system
- System of resource management and the water distribution system with the irrigation system
- Waste management system using the KNX standard (CENELEC EN 50090, CEN EN 13321-1, ISO / IEC 14543-3, GB / T 20965, ANSI / ASHRAE 135).

#### Technical Specifications

All the components of the Intelligent Buildings Platform are compliant with the KNX standard.

#### Impact in the smart city community

- Reduction of operational costs with energy utilities in the intelligent buildings
- Increasing the indoor comfort in public and residential buildings
- Real-time and optimized energy consumption management
- Aggregation of utilities consumption and centralized acquisition, with advantageous negotiation of energy prices
- The possibility of changing energy flows between public buildings / buildings, optimizing the production balance from local renewable sources and energy consumption.



#### Links to the company page and the developed project:

[www.utcluj.ro](http://www.utcluj.ro)  
[https://research.utcluj.ro/tl\\_files/research/Research%20Domain/Systems%20Engineering/2\\_Miclea.pdf](https://research.utcluj.ro/tl_files/research/Research%20Domain/Systems%20Engineering/2_Miclea.pdf)  
[https://research.utcluj.ro/tl\\_files/research/Research%20Domain/Systems%20Engineering/7\\_Dobra.pdf](https://research.utcluj.ro/tl_files/research/Research%20Domain/Systems%20Engineering/7_Dobra.pdf)



**Contact:**  
[valentin.sita@aut.utcluj.ro](mailto:valentin.sita@aut.utcluj.ro)  
[petru.dobra@aut.utcluj.ro](mailto:petru.dobra@aut.utcluj.ro)





Thank you!



**BRAINED CITY**  
*more sustainable living*

CLUJ 

**CLUJ** 